

Draft 1 Map Text

Underhill Natural Resource Inventory and Mapping

Underhill's Natural World

These maps were created from statewide data that help tell the story of ecological patterns and biodiversity. In addition to these broad-scale data, gathering local, site-specific information from on-the-ground inventories and interviews with knowledgeable residents will provide a more complete picture of our town's natural resources.

Map 1. Conservation Base Map

This map shows foundational information on our land base, streams and rivers, ponds and wetlands, roads and town boundaries. It also shows the current land under some sort of conservation, publicly owned, Use Value Appraisal (state current use), Town Open Space parcels, as well as private ownership parcel boundaries.

Conserved lands have been designated as permanently undeveloped lands. Town Open Space parcels have a time element to their conservation. State UVA parcels are likewise undeveloped unless the landowner decides to be removed from the program and pay penalty fees.

Questions: Are conserved lands protecting high priority resources? Are there other parcels that we might consider conserving?

Map 2. Land Cover

This map shows general composition and use of land. It shows areas of forests (hardwood, softwood or mixed species), open land used for different types of agriculture, and areas developed. It can be useful for visualizing where wildlife might be free to travel, and to see where development might restrict wildlife movement. It doesn't provide specific information about species composition or ecological processes, but does tell us what covers the ground at this point in time.

Land cover data can help identify abundance and distribution of general habitat types for animals and plants. It also provides a view of fragmented lands, those broken apart by human and natural divisions, or conversely, areas with large continuous forests. And it provides some information about where wildlife road crossings may be likely.

Questions:

Map 3. Forest Patterns

This map looks at habitat blocks in more detail, quantifying the distribution of habitat blocks by size of connected vegetation. Size of habitat blocks is a primary factor for healthy wildlife. Connectivity is important for healthy ecosystems to adapt to climate changes by maintaining

connected pathways across the landscape, allowing animals and plants to disperse to locations that provide more favorable conditions.

Land adjacent to streams, rivers and ponds can also form continuous pathways for wildlife movement (riparian wildlife connectivity). These are areas where conservation actions can have the greatest impact for wildlife, in addition to maintaining water quality, reducing erosion, providing flood resilience, and supporting recreational opportunities.

Grassland and scrublands provide essential habitat for many birds, mammal, reptile, and invertebrate species. Some species survive only in this habitat, and are in steep decline across the U.S. Grasslands include some agricultural fields used for hay production. These habitats are transitional in nature, and often temporary, with grassland converting to scrubland, which eventually converts to forestland. The map combines grassland and scrubland so that it can reflect a 10-year period without habitat change.

Questions: Where are the priority areas to maintain forest blocks and habitat connectors? Can we visualize possible routes for wildlife movement? How much grassland and scrubland do we have?

Map 4. Physical Features

This map identifies underlying bedrock and surgical soils, topography or landforms, and elevation. These physical features strongly influence which plants, animals, and natural communities live and thrive in a given location. Physically diverse landscapes support diverse natural communities and species, and with this diversity are more likely to adapt to changing climatic conditions. Since we can't inventory every location or species in Underhill, we can use information from the physical landscape to better understand and protect our biodiversity. It would inform the ecological potential of certain areas rather than the actual diversity.

Three categories of physical landscape diversity have been mapped statewide: rare, responsibility, and representative landscapes. Rare and responsibility physical landscapes are often places where diversity in habitat types could exist in the future. However, the scale of these data is not geographically accurate for use on a town basis (a 30 m X 30 m grid was used), but allows another way to determine conservation strategies, and when used in conjunction with other information could strengthen prioritization.

Questions:

Map 5. Water

This map shows our rivers, streams and ponds, riparian areas, vernal pools and wetlands. Most rivers and streams are considered highest priority because of their essential use for wildlife and human communities. Rivers and streams are mapped using the centerline of the streams, not the entire water body. The riparian areas expand on this to exclude the entire stream and

important lands adjacent to streams. These are not static, but can move both seasonally and over time.

The most important consideration for waterways includes maintaining vegetation on the surrounding stream bank. Riparian areas are important to flood resilience, to water quality, and to wildlife habitat.

Wetlands are inundated with water for at least 2 weeks during the growing season, contain wet (hybrid) soils, and are dominated by plant species known to be adapted to these saturated soils. These habitats are home to a unique group of plants and animals.

Vernal pool mapping is based on both confirmed and unconfirmed locations. Since vernal pools are a depression in the forest floor that fills with water each spring, often drying out later in the growing season, they can be difficult to map. They are important habitats for a number of animal species, as breeding grounds or to complete a part of their life cycle. Some species are only found in vernal pools.

Questions: Are our riparian areas vegetated? Is our wetland adjacent to Route 15 “healthy”? Do we have adequate buffers adjacent to our Class I or Class II wetlands? Do we have local inventory information on vernal pools and Class II wetlands that could improve our maps, and therefore our planning?

Map 6. Species and Community-Scale Resources

This map shows locations of a small set of species: rare and uncommon plants and animals, deer wintering areas, and mast stands that support bear and other species. No natural community mapping has been done on private lands.

Wildlife road crossing data are based on certain terrain characteristics conducive to wildlife passage, and other features. In addition, specific road crossing data were collected in Underhill (insert information).

Habitat blocks in Map 3 are displayed based on size. This map shows habitat blocks prioritized (state prioritization) based on their functional role. Habitat size, connectivity, amount of interior forest (distance from development or roads).

Questions: Can we improve our species and natural community maps? Are our high priority habitat blocks protected from fragmentation/development?

Map 7. State and Regional Priorities

This map is a compilation of all the other maps, providing guidance on the ecological priorities identified by state experts. It prioritizes natural heritage features for conservation: the network of lands and waters most important for supporting ecologically functional ecosystems, natural communities, habitats, and species.

Landscape priorities are based on datasets: interior forest blocks, connectivity blocks, riparian wildlife connectivity, surface water and riparian areas, and physical landscape diversity. Community and species priorities are based on datasets: wildlife crossings, representative lakes, exemplary surface waters, vernal pools, wetlands, rare species, uncommon species, rare natural communities, uncommon natural communities, representative natural communities, grasslands and scrublands, and mast stands.

Questions:

Additional Inventory Data

What additional data do we think is important to our work of identifying and prioritizing our town's natural resources?

Natural community mapping

Water quality studies

Wetland mapping

Significant wildlife habitat assessment

Agricultural lands assessment (currently active)

Managed forest lands inventory

Undeveloped shorelines inventory

Cultural features inventory (e.g. historic sites, scenic areas...)

Unique geological resources

Other